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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
MCCLOUD, RENATA D	

ART UNIT	PAPER NUMBER
2837	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/550,719	BUERK ET AL.	
	Examiner	Art Unit	
	RENATA MCCLOUD	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/26/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 20-25,27-30,34,36,37 rejected under 35 U.S.C. 102(b) as being anticipated by Collings et al (US6054823).

Claim 20: Collings et al teach method for determining an operating state on triggering a fan motor, comprising: operating the fan motor via a switching device (222); triggering the switching device via a pulse-width-modulated triggering signal (1000), a pulse duty factor of the triggering signal predefining a triggering state of the fan motor (col. 5:11-15,50-64); measuring (230) as a measured variable one of a voltage potential at a node between the fan motor (160) and the switching device (222) and a motor current (col. 6: 6-10); and determining an operating state on triggering the fan motor as a function of the measured variable and the pulse duty factor (col. 7:6-22).

Claim 21: The method as recited in Claim 20, further comprising: smoothing the measured variable by low-pass filtering (250) the measured variable.

Claim 22: The method as recited in Claim 20, further comprising: recognizing an open load fault if the voltage potential essentially corresponds to a supply voltage potential of the fan motor applied to the switching device (col. 1:30-28).

Claim 23: The method as recited in Claim 20, further comprising: upon recognition of an open load fault, switching the switching device through for a specific period of time, in order to

apply a maximum voltage to the fan motor, so that merely oxidized connection points are cleaned (col. 5:50-64).

Claim 24: The method as recited in Claim 20, further comprising: recognizing a normal operation if the voltage potential is essentially proportional to the pulse duty factor and the voltage potential is in a defined voltage range in relation to an applied pulse duty factor (col. 1:39-49).

Claim 25: determining the defined voltage range by a measurement at a defined applied supply voltage at different pulse duty factors (col.4:65-5:15).

Claim 27: recognizing one of a blocking and a sluggishness of the fan motor if the motor current is outside a defined current range (col. 1:30-28)..

Claim 28:determining the defined current range by a measurement at a defined applied supply voltage at different pulse duty factors (col. 7:5-33).

Claim 29:A control circuit for a fan motor for determining an operating state on triggering the fan motor, comprising: a switching device (222) having a terminal for connection to a first supply potential; a pulse width modulation circuit (130) for triggering the switching device using a pulse-width-modulated signal having a pulse duty factor, the fan motor being connectable between a second supply potential and the switching device; a measuring circuit (230) for picking up a measured variable at the switching device; and an analyzer circuit (260) for checking the measured variable and determining the operating state as a function of the measured variable and the pulse duty factor (col. 7:6-22).

Claim 30:The control circuit as recited in Claim 29, further comprising: a filter circuit (250) for smoothing the measured variable in such a way that the measured variable is essentially proportional to the pulse duty factor..

Claim 34: a data interface (bus lines) for transmitting the operating state over a network)col. 2:12-15).

Claim 36: the measuring circuit measures a motor current through the fan motor (col. 5:2-6).

Claim 37: the switching device includes a sense FET to measure the motor current through the fan motor.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 20,22,29,34-37 rejected under 35 U.S.C. 102(e) as being anticipated by Yoshimura (US 6512346).

Claim 20: Yoshimura teaches A method for determining an operating state on triggering a fan motor, comprising: operating the fan motor via a switching device (Tr1); triggering the switching device via a pulse-width-modulated triggering signal (16), a pulse duty factor of the triggering signal predefining a triggering state of the fan motor ; measuring (R1) as a measured variable one of a voltage potential at a node between the fan motor (2) and the switching device

(Tr1) and a motor current ; and determining an operating state on triggering the fan motor as a function of the measured variable and the pulse duty factor (col.4:56-5:7)

Claim 22: The method as recited in Claim 20, further comprising: recognizing an open load fault if the voltage potential essentially corresponds to a supply voltage potential of the fan motor applied to the switching device (abstract; col. 5:40-44).

Claim 29:A control circuit for a fan motor for determining an operating state on triggering the fan motor, comprising: a switching device (Tr1) having a terminal for connection to a first supply potential; a pulse width modulation circuit (16) for triggering the switching device using a pulse-width-modulated signal having a pulse duty factor, the fan motor being connectable between a second supply potential and the switching device; a measuring circuit (R1) for picking up a measured variable at the switching device; and an analyzer circuit (20) for checking the measured variable and determining the operating state as a function of the measured variable and the pulse duty factor (col.4:56-5:7).

Claim 34: a data interface (bus lines) for transmitting the operating state over a network.

Claim 35: the measuring circuit (R1) measures a voltage between the fan motor (2) and the switching device (Tr1).

Claim 36: the measuring circuit (R1) measures a motor current through the fan motor (2).

Claim 37: the switching device includes a sense FET (Tr1) to measure the motor current through the fan motor.

Claim Rejections - 35 USC § 103

5 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 31-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura in view of Erdman et al (US 5075608)

Claim 31: Yoshimura teaches the limitations of claim 29. Referring to claim 31, they do not teach a compensating circuit including a data memory and for performing a compensation of the measure a reference variable at a defined applied supply voltage and store the reference variable as reference values in relation to the particular pulse duty factor control circuit, the compensating circuit being connected to the measuring circuit in order to. Erdman et al teach a compensating circuit including a data memory and for performing a compensation of the control circuit, the compensating circuit connected to the measuring circuit to measure a reference variable at a defined applied supply voltage and store the reference variable as reference values in relation to the particular pulse duty factor (col. 10:12-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Yoshimura to have a compensating circuit as taught by Erdman et al in order to control the motor.

Claim 32: Erdman et al teach wherein the compensating circuit stores further reference values in the data memory, the compensating circuit determining the further reference values from interpolation of the measured reference values. (col. 10:12-28).

Claim 33: Erdman et al teach the analyzer circuit checks the measured variable to determine the operating state by comparing the measured variable to the reference values

stored in the data memory in regard to the particular pulse duty factor, and the operating state is recognized as a function of a deviation between the measured variable and the reference variable. (col. 10:12-28)

7. Claims 26,31-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Collings et al in view of Erdman et al (US 5075608)

Claim 26: Collings et al teach the limitations of claim 24. Referring to claim 26, they do not teach recognizing an overvoltage fault if a measured voltage potential is above the defined voltage range. Erdman teaches (col. 12:7-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Collings et al to sense an over voltage as taught by Erdman et al in order to prevent damage to the motor

Claim 31: Collings et al teach the limitations of claim 29. Referring to claim 31, they do not teach a compensating circuit including a data memory and for performing a compensation of the measure a reference variable at a defined applied supply voltage and store the reference variable as reference values in relation to the particular pulse duty factor control circuit, the compensating circuit being connected to the measuring circuit in order to. Erdman et al teach a compensating circuit including a data memory and for performing a compensation of the control circuit, the compensating circuit connected to the measuring circuit to measure a reference variable at a defined applied supply voltage and store the reference variable as reference values in relation to the particular pulse duty factor (col. 10:12-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Collings et al to have a compensating circuit as taught by Erdman et al in order to control the motor.

Claim 32: Erdman et al teach wherein the compensating circuit stores further reference values in the data memory, the compensating circuit determining the further reference values from interpolation of the measured reference values. (col. 10:12-28).

Claim 33: Erdman et al teach the analyzer circuit checks the measured variable to determine the operating state by comparing the measured variable to the reference values stored in the data memory in regard to the particular pulse duty factor, and the operating state is recognized as a function of a deviation between the measured variable and the reference variable. (col. 10:12-28)

8. Claim 38 rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura in view of Horng et al (US 6396231).

Claim 38: Yoshimura teaches the limitations of claim 37. Referring to claim 38, Yoshimura does not teach a transformer circuit to which is connected the sense FET, wherein the transformer circuit converts a motor current into a proportional voltage that is provided to the measuring circuit. Horng et al teach a transformer circuit to which is connected to a switch wherein the transformer circuit converts a motor current into a proportional voltage that is provided to the measuring circuit (col. 4:50-64, applicant refers to the transformer as a voltage divider in par. 0039). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Yoshimura to have a transformer circuit as taught by Horng et al in order to control the power to the motor.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RENATA MCCLOUD whose telephone number is (571)272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/R. M./
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